

# The Relationship between Behavioral Activation/Inhibition Systems (BAS/BIS) and Bullying/ Victimization Behaviors among Male Adolescents

Sajjad Basharpour, PhD<sup>1</sup>  
 Parviz Molavi, MD<sup>2</sup>  
 Usha Barahmand, PhD<sup>1</sup>  
 Seyed Amin Mousavi MD<sup>3</sup>

<sup>1</sup> University of Mohaghegh  
 Ardabili, Ardabil, Iran.  
<sup>2</sup> Ardabil University of Medical  
 Science, Ardabil, Iran.  
<sup>3</sup> Ardabil Azad University of  
 medical science, Ardabil, Iran.

**Corresponding author:**  
 Parviz Molavi, MD  
 Ardabil University of Medical  
 Science, Ardabil, Iran.  
 Tel: +98- 451-2239033  
 Email: pmolavi@tums.ac.ir

**Objective:** This research was conducted to investigate the relationship between behavioral activation-inhibition systems and bullying-victimization behaviors among adolescents.

**Method:** This was a correlational and cross-sectional study. Two hundred and thirty school boys were selected randomly by multistage cluster sampling method, and participated in this research. This sample responded to a demographic questionnaire, the Revised Olweus Bully/ Victim questionnaire and the child version of behavioral inhibition/activation systems Scale in their classrooms and in the presence of the researcher. The collected data were analyzed by Pearson's correlation and multiple regressions.

**Result:** The results showed that bullying and victimization were correlated with both behavioral activation and behavioral inhibition systems ( $p < 0.01$ ). The results also showed that 18% of the variance in victimization and 31 % of the variance in bullying were explained by behavioral inhibition and behavioral activation systems respectively.

**Conclusion:** The results of this study implied that BAS and BIS may play a role in the manifestation of bullying in adolescents.

**Key words:** Behavioral activation system (BAS), behavioral inhibition system (BIS), bullying, victimization, adolescents

*Iran J Psychiatry 2013; 8:3: 118-123*

**B**ullying behavior and peer victimization among adolescent school students have received increasing attention in the last years. Although some conflict and satirizing are normal among adolescents (1), bullying reveals a stable threat to children's psychosocial adjustment. Serious psychological, social, educational and behavioral outcomes of bullying have stimulated scientific investigations into the prevention and intervention of this problem. Bullying behavior is defined as an imbalance of power between two individuals, where the stronger individual repeatedly causes harm to the weaker individual (2). Adolescent bullying is a significant international problem (3) with as many as 100–600 million adolescents directly involved in bullying worldwide, each year (4). Moreover, bullying has been documented by anthropologists, studying modern hunter-gatherers (5) and historians, documenting past cultures (6).

The studies on bullying demonstrate that about 30% of the students are involved in bullying either as a bully or as a victim, or both a bully and victim (7, 8, 9). According to the data provided by the National Institute of Child Health and Human Development (NICHD), of the 30% of the students involved in bullying, 13% reported that they actually bullied other students; 11% experienced bullying and 6%

were involved in bullying either as a bully or as a victim (8). In another study, 8% of the students reported being bullied at least once a week. (10). In the different studies conducted in the United States, England, Germany, Finland and Australia, the frequency of bullying was reported to be in the region of 15% to 20% (11). On the other hand, in a study carried out by Greeff (2004), among 360 four to six grade students, 56.4% reported being bullied (12). In a study in Turkey, the results of Cartal (2009) on elementary school students showed that 79.6 % of students were bullied during the past month (13).

The causes of bullying are multiple; these causes relate to both personal factors as well as the social environment. It has been claimed that students who are physically stronger, more aggressive, more adventurous, and physically more active have an intrinsic tendency to bully. On the other hand, those students who are physically and emotionally weaker, more reserved, more unpretentious and not vindictive are likely to be the victims. When one investigates aggressiveness and family factors, it is easy to observe that the bullies come from families lacking role-models, problem solving skills and discipline and are exposed to violence and aggressive disciplinary techniques in their families (13). Unlike

the bullies, the victims have a tendency to be quiet and passive, and have only few friends. The victims are unable to effectively respond to the aggressive behavior of others and are inhibited and would not tell about being bullied to an adult or wait for a long time to do so (14). Some of the reasons for these are timidity, and fear that, if they do report, their families may not be able to protect them in places where they are bullied (in play grounds, school hallways and going to and from school) (15). It is reported that the male victims, when compared to male bullies, are physically weak and less skillful. Oliver et al. (1994) demonstrated that the bullied victims think that they are bullied due to their own incompetence, sentimentality and social incapability, and also think that they are themselves to blame for this (16).

However, relatively little research has directly studied the link between personality factors and bullying. Olweus (2) outlined the typical personality of bullies as being tolerant of violence, impulsive, and unempathic. Studies using the Eysenck Personality Inventory-Junior reported heightened levels of psychoticism and modest increases in extraversion and neuroticism amongst bullies (17, 18, 19).

Other studies regarding bullying and the Big Five personality factors have revealed that children who bullied tended to show a similar pattern of low Friendliness (Agreeableness) and higher Emotional Instability (Neuroticism) (20, 21). A study amongst American children again found a negative correlation with Agreeableness, but no relationship with Neuroticism and a significant negative relationship with Conscientiousness (22). Scholte and colleagues (2005) found that under controllers (moderate to high scores on extraversion, low scores on Agreeableness and Conscientiousness) were more likely to bully other children (23). Book, Volk and Hosker (2012) found that bullying negatively associates with such personality traits as fairness and modesty (Honesty-Humility), but is unrelated to such traits as forgiveness and tolerance (Agreeableness). In this study, bullying was related to instrumental, but not reactive, aggression (24). Bullying has also been linked to moderately higher levels of callous-unemotional (CU) traits that include lack of guilt, lack of empathy, poor affect, and use of another for personal gain (25, 26).

Based on a theoretical framework for the understanding of bullying behavior, provided by Grigsby and Stevens (27), bullies may lack the capability to inhibit their aggressive and inappropriate verbal and physical actions. In their study aimed to investigate the effects of the behavioral activation system (BAS) and behavioral inhibition system (BIS) on decision-making in a gambling task, Kim and Lee (28) found that the high BAS and low BIS group made the most risky decisions after a winning experience, while the low BAS and high BIS group made more non-risky

decisions after a losing experience. On the irrational belief scale, the high BAS groups bet larger amounts and had higher confidence levels in a losing condition. In their research aimed to study the relationship between components of the behavioral activation system and impulsivity, Leone and Russo (29) found that the drive component was uniquely connected with functional impulsivity, and fun seeking was linked to both impulsivities, but more weakly so to functional impulsivity compared with drive. Reward responsiveness was unrelated to impulsivity. High levels of BIS activity are thought to be linked to anxiety symptoms (30), whereas low levels of BIS activity have been proposed to be associated with attention-deficit and hyperactivity disorder (31) and psychopathy (32). In addition, high levels of BAS activity are hypothesized to be related to conduct disorder and antisocial personality disorder (33), whereas low levels of BAS activity have been regarded as a marker for depression (34). The results of Connolly and Mona O'Moore (17) indicated that children who bullied exhibited greater emotional inhibition and attributed significantly more negative statements to themselves than children who did not bully. The children who bullied also demonstrated an ambivalent relationship with their siblings, mothers and fathers. In the study of Cagnon (36), High BAS drive and low BIS were significant predictors of aggressive behavior, and BAS reward responsiveness predicted protective behavior.

Based on the results of these studies, it appears that the findings for bullying and personality are few, scattered in their measures, and largely a theoretical. Given Gray's assumption that the various types of psychopathology can be explained by different constellations of BIS and BAS and based on the importance of the functioning of brain systems in understanding different forms of psychopathology implied in previous researches, this research was conducted to investigate the relationship between Behavioral Activation-Inhibition Systems and bullying-victimization behaviors among adolescents.

## **Material and Methods**

Using a cross-sectional analytic study, the relationship between BAS-BIS brain systems and bullying-victimization in adolescent students was explored.

### *Participants*

All male students enrolled in secondary and high schools in Ardabil during 2011-2012 academic years made up the statistical population of this research. Two hundred and thirty students were selected randomly by multistage cluster sampling method, and participated in this research.

### *Measures*

The following instruments were used to obtain the necessary data in this research:

1. A demographic questionnaire

A demographic questionnaire was administered to gather demographic information such as age, school grade, social and economical status of family. These data were used for descriptive purposes .

## **2. The Revised Olweus Bully-Victim Questionnaire**

The Persian version of this scale developed by Olweus in 1996 and reviewed by Solberg and Olweus in 2003 was utilized. This questionnaire is based on a Likert rating scale and consists of 39 questions measuring 1. Exposure to various (physical, verbal, indirect, racial, sexual etc) forms of bullying. Harassment, (victimization: items 4-23) and 2. Various forms of bullying other students (bullying: items 24-39), for a period of the last 2 or 3 months (37). Internal consistency of this questionnaire was found to range between 0.80 and 0.90 in a large sample of more than 5000 students. The coefficients of convergent validity of this questionnaire with valid peer rating were reported to be moderate ranging from 0.40 to 0.6 (38). Cronbach's alpha for the victimization scale was 0.81, while alpha for the bullying scale was 0.78 .

## **3. The Children version of BIS. BAS scales**

These scales were developed by Muris et al. (39) based on the Carver & White BIS.BAS scales. These researches changed and simplified the original items of the Carver & White BIS.BAS scales to make them more appropriate and understandable to children. These scales have been constructed to assess individual differences in sensitivity of the BIS and BAS. Each item had to be scored on a four-point Likert scale with 0 = not true, 1 = somewhat true, 2 = true, and 3 = very true. Previous factor analytic studies using the BIS. BAS scales in adults have consistently demonstrated that the 20 items can be allocated to four subscales: BIS; BAS Reward responsiveness; BAS Drive; and BAS Fun seeking (40). Muris et al. (39) reported Cronbach alpha of 0.78 for BIS and 0.81 for BAS. These coefficients ranged between 0.65 and 0.93 in this study. Both questionnaires used in this study were initially translated to Farsi and then back translated to English by a graduate student majoring in English translation. Next, the face validity of these questionnaires was confirmed by two psychologists and two psychiatrists. The internal consistency of these questionnaires was also estimated using Cronbach's alpha and the results have been reported for each questionnaire.

Data collection began after having secured permission from the educational department of city of Ardabil. In the first stage, one educational zone was selected randomly from the two Ardabil educational zones. Then, a secondary school and a high school for boys were selected from these areas. Finally, one class was selected from each educational level (first, second and third grades). The students were informed about the purpose of the study; and then, the demographic questionnaire, The Revised Olweus Bully/Victim Questionnaire and the children version of BIS/BAS scales were administered in groups in their classrooms and in the presence of the researcher. The collected

data were analyzed using Pearson's correlation and multiple regression analyses.

## **Result**

Two hundreds and twelve male students with a mean age ( $\pm$  SD) equal to 15.06 ( $\pm$ 1.47) participated in this research.

Table 4 shows that 31% of the total variance in bullying is explained by BAS and BIS. Results BIS (punishment), was able to negatively predict bullying negatively and BAS (fun seeking) was able to predict it positively .

The result of table 2 shows demonstrates that that all components of BAS negatively correlated negatively with victimization and positively correlated with bullying. Conversely, BIS correlated positively correlated with victimization and negatively correlated with bullying .

Table 3 shows that 18 percent% of the total variance in victimization by bullying is explained by BAS and BIS. of the various indices of BAS and BIS, only two BAS indices, (reward responsiveness and drive), are predictive of victimization .

Table 1 shows the frequency and percentage of subjects participating in this research in terms of educational grade, socioeconomic status, parents' employment and educational status.

## **Discussion**

The results of this research showed that all components of the BAS (reward responsiveness, drive and fun seeking) negatively correlated with victimization, but BIS (sensitivity to punishment) positively correlated with victimization. The results also showed that drive and reward responsiveness, two components of BAS, explain about 18% of the total variance in victimization. These results are consistent with the results of Cohn and Canter (13), Morano (14), relating to the characteristics of bullied children, and the results of Oliver et al., (16) and Kim and Lee (28), suggesting that bullied children believe that they are incompetent and socially incapable. The behavioral inhibition system (BIS), in which reactivity emerges as trait anxiety at the surface personality level (30), leads to passive reactions and avoidance when confronted with punishment cues and new stimuli. As a result, the person becomes vulnerable to victimization by peer bullying. Given the relationship between victimization and affective problems, these results support the results of studies, reporting the predictive role of BIS in affective disorders (41).

On the other hand, the behavioral activation system (BAS), activated by positive stimuli and signals of impending reward, activates the reward seeking behavior, feelings of pride and the expectancy for good events, despite the existence of threat and danger (30).

Table 1: Descriptive characteristics of participants

variables	category	Frequency	percent
School grade	Junior high first grade	32	15.1
	Junior high second grade	33	15.6
	Junior high third grade	39	18.4
	Senior high first grade	37	17.5
	Senior high second grade	33	15.6
	Senior high third grade	38	17.9
Socio-economic status	low	10	4.7
	middle	76	35.8
	upper middle	64	30.2
	high	60	28.3
Father's employment status	Government employee	44	20.8
	Self-employed	68	32.1
	unemployed	58	27.4
	other	42	19.8
Mother's employment status	Government employee	18	8.5
	Self-employed	10	4.7
	unemployed	180	84.9
Father's educational status	Not completed high school	140	66.0
	Between high school and undergraduate studies	60	28.3
	Beyond graduation	12	5.7
Mother's educational status	Not completed high school	132	62.3
	Between high school and undergraduate studies	74	34.9
	Beyond graduation	6	2.8

Table 2: Pearson correlations of BAS/BIS components and bullying/victimization

Variables	M	SD	Bullying	BIS (Punishment)	BAS(Reward Responsiveness)	BAS (Drive)	BAS (Fun seeking)
Victimization by other bullying	24.45	9.72	-0.13	0.22**	-0.37**	-0.35**	-0.15*
Bullying	30.14	10.14		-0.47**	0.30**	0.30**	0.36**
BIS (Punishment)	8.98	3.90			-0.27**	-0.26**	-0.22**
BAS(Reward Responsiveness)	10.10	4.30				0.49**	0.29**
BAS (Drive)	7.73	4.51					0.46**
BAS (Fun seeking)	7.91	5.80					

Behavioral activation system (BAS), behavioral inhibition system (BIS)

Table 3: prediction of victimization by bullying on BAS and BIS

Criterion	Predictors	R <sup>2</sup>	B	B SE	β	T	p	Collinearity statistics	
		0.18						tolerance	VIF
Victimization	(Constant)		3.82	2.57		11.97	0.001		
	BIS (Punishment)		0.25	0.16	0.10	1.55	0.12	0.89	1.18
	BAS(Reward Responsiveness)		-0.55	0.16	-0.24	-3.30	0.001	0.73	1.36
	BAS (Drive)		-0.48	0.16	-0.22	-2.87	0.004	0.64	1.56
	BAS(fun seeking)		0.07	0.12	0.04	0.65	0.51	0.77	1.29

Behavioral activation system (BAS), behavioral inhibition system (BIS)

Table 4: prediction of bullying on BAS and BIS

Criterion	predictors	R <sup>2</sup>	B	B SE	β	T	p	Collinearity statistics	
		0.31						tolerance	VIF
Bullying	Constant		32.57	2.46		13.21	0.001		
	BIS (Punishment)		-1.00	0.15	-0.38	-6.29	0.001	0.89	1.11
	BAS(Reward Responsiveness)		0.27	0.15	0.11	1.70	0.08	0.73	1.36
	BAS (Drive)		0.08	0.16	0.03	0.51	0.60	0.63	1.56
	BAS(fun seeking)		0.39	0.11	0.22	2.44	0.001	0.77	1.29

Behavioral activation system (BAS), behavioral inhibition system (BIS)

These personally traits prevent the person from being victimized by bullying .

The second result of this study was that bullying correlates with high activity of the behavioral activation system, but negatively correlates with the high activity of the behavioral inhibition system. The behavioral inhibition system (sensitivity to punishment) and behavioral activation system (fun seeking) were able to explain about 31% of the variance in bullying. These results are consistent with results of Olweus (2), Connolly and O'Moore (17), Mynard and Joseph (18), Slee and Rigby, Menesini et al (20), Tani (21), Volk and Hosker (24) in that personality correlates with bullying behavior. These results are also congruent with the correlation of high BAS and low BIS with making risky decisions, reported by Kim and Lee (28) and results of Quay (33) on relationships between high activity of BAS and conduct disorder. According to Gray's ideas (30), the BIS serves to alert the person to the possibility of danger or punishment, thereby enhancing avoidance behavior. High activity in the BIS is responsible for feelings of anxiety and incites the individual to stop whatever action is going on and to scan the environment for further cues. Low activity of this system in adolescents leads to impetuosity and bullying. On the other hand, high activity in the BAS produces impulsive behavior: the person will vigorously pursue any action that might result in reward, with little attention to the possibility of negative consequences. The important result of this study was that the components of BAS, only fun seeking in the regression model predicted variance in bullying. Based on this finding, it can be concluded that a lot of bullying behaviors among adolescent boys may be conducted for fun and excitement .

In conclusion, the results of this study demonstrate that temperamental traits such as BAS and BIS play an important role in manifestation of psychopathology, especially in adolescent bullying. An important limitation of this study is the use of correlational research as it provides no possibility for any causal inference between these variables. The use of self-report for the assessment of bullying and lack of precise control over certain intervening variables were further factors that limit the implications of this study. Other measures such as teacher, parent or peer reports could be used for assessment of bullying/ victimization in future research.

## Acknowledgements

The authors thank the management of the Educational system in Ardabil for their cooperation.

## References

1. Roberts WB, Allan A M. The Bully as Victim: Understanding Bully Behaviors To Increase

- the Effectiveness of Interventions in the Bully-Victim Dyad. *Professional School Counseling* 2000; 4: 148-155.
2. Olweus D. *Bullying at school: What we know and what we can do.* UK Oxford: Blackwell; 1993.
3. Pepler D, Craig W. (Eds.). *Understanding and addressing bullying: An international perspective.* Bloomington, IN: Author House. 2008.
4. Volk A, Craig W, Boyce W, King M. Adolescent risk correlates of bullying and different types of victimization. *Int J Adolesc Med Health* 2006; 18: 375-386.
5. Turnbull CM. *The mountain people.* NY: Touchstone; 1972.
6. Cunningham H. *Children and childhood in western society since 1500.* Toronto: Pearson-Longman; 2005.
7. Nansel TR, Overpeck M, Pilla RS, Ruan WJ, Simons-Morton B, Scheidt P. Bullying Behaviors among US Youth: Prevalence and Association with Psychosocial Adjustment. *JAMA* 2001; 285: 2094-2100.
8. Fight Crime: Invest in Kids. *Bullying Prevention is Crime Prevention.* Retrieved 08, August 21, 2006, from <http://fightcrime.org>; 2003.
9. Harris S, Willoughby W. Teacher Perceptions of Student Bullying Behaviors. *ERS Spectrum* 2003; 21: 11-18.
10. Northwest Regional Educational Laboratory. *Schoolwide Prevention of Bullying.* 2001; Retrieved from <http://www.nwrel.org>.
11. Kartal, H. The Ratio of Bullying and Victimization among Turkish Elementary School Students and its Relationship to Gender and Grade Level, *J Soc Sci* 2009; 20: 109-119.
12. Greeff P. The Nature and Prevalence of Bullying During the Intermediate School Phase. Thesis of Master (Unpublished). <http://etd.uovs.ac.za/ETD-db/theses/available/etd-09292005-154532/unrestricted/GREEFFP>; 2004.
13. Cohn A, Canter A. *Bullying: Facts for Schools and Parents.* National Association of School Psychologists. <http://www.naspcenter.org>; 2003.
14. Hawker DSJ, Boulton MJ. Twenty years research on peer victimization and psychosocial maladjustment: A meta-analytic review of cross-sectional studies. *Journal of Child Psychology and Psychiatry*, 2000; 41: 441-455.
15. Garrity C, Jens K, Porter W, Sager N, Short-Camilli C. *Bully-proofing Your School: A Comprehensive Approach.* National School Safety Center News Journal 1996; 3: 20-23.
16. Oliver R, Hoover JH, Hazler R. The Perceived Roles of Bullying in Small-town Midwestern Schools. *Journal of Counseling and Development* 1994; 72: 416-420.
17. Connolly I, O'Moore M. Personality and family relations of children who bully. *Personality and Individual Differences*, 2003; 35: 559-567.
18. Mynard H, Joseph S. Bully.victim problems and their association with Eysenck's

- personality dimensions in 8 to 13-year olds. *Br J Educ Psychol* 1997; 67: 51–54.
19. Slee PT, Rigby K. The relationship of Eysenck's personality factors and self-esteem to bully-victim behavior in Australian schoolboys. *Personality and Individual Differences* 1993; 14: 371–373.
20. Menesini E, Camodeca M, Nocentini A. Bullying among siblings: The role of personality and relational variables. *Br J Dev Psychol* 2010; 28: 921–939.
21. Tani F, Greenman PS, Schneider BH, Fregoso M. Bullying and the Big Five: A study of childhood personality and participant roles in bullying incidents. *School Psychology International* 2003; 24: 131–146.
22. Bollmer JM, Harris MJ, Milich R. Reactions to bullying and peer victimization: Narratives, physiological arousal, and personality. *Journal of Research in Personality* 2006; 40: 803–828.
23. Scholte R, Lieshout CF, Wit CA, Aken, MA. Adolescent personality types and subtypes and their psychosocial adjustment. *Merrill-Palmer Quarterly* 2005; 51: 258–286.
24. Book AS, Volk AA, Hosker A. Adolescent bullying and personality: An adaptive approach. *Personality and Individual Differences* 2012; 52: 218–223.
25. Barry CT, Frick PJ, DeShazo TM, McCoy MG, Ellis M, Loney BR. The importance of callous-unemotional traits for extending the concept of psychopathy to children. *J Abnorm Psychol* 2000; 109: 335–340.
26. Viding E, Simmonds E, Petrides KV, Frederickson N. The contribution of callous-unemotional traits and conduct problems to bullying in early adolescence. *J Child Psychol Psychiatry* 2009; 50: 471–481.
27. Grigsby J, Stevens D. The neurodynamics of personality. New York: Guilford. 2000.
28. Kim DY, Lee JH. Effects of the BAS and BIS on decision-making in a gambling task. *Personality and Individual Differences* 2011; 50: 1131–1135.
29. Leone L, Russo PM. Components of the Behavioral Activation System and Functional Impulsivity: A test of discriminant hypotheses. *Journal of Research in Personality*, 2009; 43: 1101–1104.
30. Gray JA. The psychology of fear and stress. New York: Cambridge University Press; 1987.
31. Quay HC. Attention deficit disorder and the behavioral inhibition system: The relevance of the neuropsychological theory of Jeffrey A. Gray. In: Bloomingdale LM, Sergeant J. Attention deficit disorder: Criteria, cognition, and intervention. New York: Pergamon; 1988.
32. Fowles DC. The three arousal model: Implications of Gray's two-factor learning theory for heart rate, electrodermal activity, and psychopathy. *Psychophysiology* 1980; 17: 87–104.
33. Quay HC. The psychobiology of undersocialized aggressive conduct disorder: A theoretical perspective. *Development and Psychopathology* 1993; 5: 165–180.
34. Depue RA, Krauss SP, Spont MR. A two-dimensional threshold model of seasonal bipolar affective disorder. In: Magnuson D, Ohman A. Psychopathology: An international perspective. San Diego, CA: Academic Press; 1987.
35. Reijntjes A, Kamphuis JH, Prinzie P, Telch MJ. Peer victimization and internalizing problems in children: A meta-analysis of longitudinal studies. *Child Abuse & Neglect* 2010; 34: 244–252.
36. Gagnon CM. Bullying in schools: The role of empathy, temperament, and emotion regulation. Florida Atlantic University 2012; 135: 351–358.
37. Solberg ME, Olweus D. Prevalence estimation of school bullying with the Olweus bully/victim questionnaire. *Aggressive Behavior* 2003; 29: 239–268.
38. Olweus D. Bullying at school: Basic facts and effects of a school based intervention program. *J Child Psychol Psychiatry* 1994; 35: 1171–1190.
39. Muris P, Meesters C, Kanter ED, Timmerman PE. Behavioral inhibition and behavioural activation system scales for children: relationships with Eysenck's personality traits and psychopathological symptoms. *Personality and Individual Differences* 2005; 38: 831–841.
40. Carver CS, White TL. Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment. *Journal of Personality and Social Psychology* 1994; 67: 319–333.
41. Knyazev GG. Personality types and behavioral activation and inhibition in adolescents. *Personality and Individual Differences*, 2006; 41: 1385–1395.